WHAT IS CLAIMED IS:

1. An inverter controller for driving a motor, comprising:

an AC power supply for supplying an AC power;

a rectifier formed of a diode bridge for rectifying the AC power to be converted to DC power;

a reactor having a predetermined small capacity which is connected to the rectifier, for improving a power factor of the AC power supply;

an inverter which converts the DC power to AC power for driving the motor;

a capacitor having a predetermined small capacity which is connected between DC bus lines of the inverter to absorb regeneration energy from the motor;

a motor voltage command generator which generates a motor voltage command value of the motor, based on a speed command value of the motor applied from the outside;

a PN voltage detector which detects a DC voltage value of the inverter;

a PN voltage corrector which calculates a ratio of the DC voltage detection value of the inverter obtained by the PN voltage detector to a predetermined DC voltage reference value of the inverter to thereby generate a PN voltage correction factor; and

a motor voltage command corrector which generates a motor voltage command correction value of the motor.

2. The inverter controller according to claim 1, wherein the motor

voltage command corrector obtains the motor voltage command correction value of the motor by multiplying the motor voltage command value obtained by the motor voltage command generator by the PN voltage correction factor which is generated by the PN voltage corrector.

3. The inverter controller according to claim 1, wherein the PN voltage corrector provides the PN voltage correction factor by dividing the DC voltage reference value by the DC voltage detection value, and sets a predetermined maximum value of the PN voltage correction factor as the PN voltage correction factor when the DC voltage detection value is zero or less.

4. The inverter controller according to claim 1, wherein the PN voltage correction factor generated by the PN voltage corrector has at least a predetermined upper limit value or a predetermined lower limit value.

5. The inverter controller according to claim 1, wherein the PN voltage corrector increases the PN voltage correction factor in proportion to the DC voltage detection value when the DC voltage detection value is larger than the DC voltage reference value.

6. The inverter controller according to claim 1, wherein an inverter operation frequency is prevented from being constantly fixed at a resonant frequency in which the inverter operation frequency is an even-numbered multiple of an AC power supply frequency and in a range having a

predetermined frequency width around the resonant frequency.

7. The inverter controller according to claim 1, wherein a combination of the small-capacity reactor and the small-capacity capacitor is decided so that a resonant frequency between the small-capacity reactor and the small-capacity capacitor is made larger than the forty-fold of the AC power supply frequency.

8. The inverter controller according to claim 1, wherein the capacity of the small-capacity capacitor is decided so that a maximum value of the DC voltage value, which increases when the inverter stops, is made smaller than a withstand voltage of the capacitor.

9. The inverter controller according to claim 1, wherein a carrier frequency of the inverter is decided so as to satisfy a predetermined AC power supply power factor value.

10. An air conditioner which includes a converter apparatus for converting AC power to DC power and an inverter apparatus for converting the DC power converted by the converter to AC power of a variable voltage and a variable frequency and supplying the AC power to a motor for driving a compressor,

wherein the inverter apparatus, comprises:

an AC power supply for supplying an AC power;

a rectifier formed of a diode bridge for converting the AC power to DC

power;

a reactor having a predetermined small capacity which is connected to the rectifier, for improving a power factor of the AC power supply;

an inverter which converts the DC power to AC power for driving the motor;

a capacitor having a predetermined small capacity which is connected between DC bus lines of the inverter to absorb regeneration energy from the motor;

a motor voltage command generator which generates a motor voltage command value of the motor, based on a speed command value of the motor applied from the outside;

a PN voltage detector which detects a DC voltage value of the inverter;

a PN voltage corrector which calculates a ratio of the DC voltage detection value of the inverter obtained by the PN voltage detector to a predetermined DC voltage reference value of the inverter to thereby generate a PN voltage correction factor; and

a motor voltage command corrector which generates a motor voltage command correction value of the motor.